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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,317	09/08/2005	Alexander Gorban	22193-00009-US1	1461
42441 7590 01/09/2008 CONNOLLY BOVE LODGE & HUTZ LLP (FOR CABINET BEAU DE LOMENIE) P.O. BOX 2207 WILMINGTON, DE 19899-2207			EXAMINER DAVIS, MARY ALICE	
			ART UNIT 3748	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/521,317

Applicant(s)

GORBAN, ALEXANDER

Examiner

Mary A. Davis

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 3,8-14,16 and 18-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,15 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/14/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of the election of species in the reply filed on 26 November 2007 is acknowledged.
2. Applicant submits that claims 1-2, 4-7, 15, and 17 are readable on the species of Figures 11-12. Claims 3, 8-14, 16, and 18-22 are considered withdrawn since they are directed to the non-elected species.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation to: "is connected to a second one of said male and female members", "said second member", and "said first member". What does the applicant mean by "a second one"? The apparatus of Figures 11 and 12 contain one male and one female member. The Examiner recommends using - - said male - - or - - said female - - members instead of "a second one", "second member", or "first member", since it is not clear that the applicant is trying to limit the male or female members or if the applicant is including a new member. Claims 2-17 are rejected by virtue of their dependence on claim 1.

4. Claims 2, 5, and 7 recites the limitation to: "it further comprises". What is "it" referring to? The Examiner recommends rewriting the preamble of claims 2 and 5 to: -

- A rotary screw machine according to claim 1 further comprising... - -. Claim 7 should be rewritten in a similar manner, but it depends from claim 5.

5. Claim 17 recites the limitation to: "said male and female surfaces can degenerate into cylindrical surfaces". It is unclear on what the applicant means by the surfaces can degenerate into cylindrical surfaces. From Figures 11-12, the Examiner construes that the applicant is referring to the female surface containing two overlapping cylindrical surfaces. The Examiner recommends that the limitation is rewritten to - - said male **or** said female surfaces - - , since in Figures 11-12 only the female surfaces degenerate to cylindrical surfaces. The Examiner is construing that only one of the surfaces either male or female is degenerate to cylindrical surfaces.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***7. Claims 1-2, 4, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by PAYNE (U.S. Patent 3,299,822), as currently understood by the Examiner.***

Regarding claim 1, PAYNE discloses:

- A rotary screw machine of volume type comprising a body (22) having a main axis X, two members consisting of a male member (20) and a female member (22) surrounding said male member (see Figures 5 and 7), wherein an outer

surface of the male member defines a male surface (see Figures 5 and 7, which shows the outer surface of the male member) and a inner surface of the female member defines a female surface (see Figures 5 and 7, which shows the inner surface of the female member), said male and female surfaces being helical surfaces (see Figure 7) having respective axes  $X_m$  and  $X_f$  that are parallel and spaced apart by a length (see Column 1, line 19 – Column 2, line 2 and Column 3, lines 8 – 39, which discloses that the male and female axes are spaced apart. Furthermore, it is inherent that the male and female axes are parallel as shown in Figures 5 and 7), said male and female surfaces defining at least one working chamber (see Figures 5 and 7) by formation of linear contacts of said male and female surfaces and relative displacement of said male and female members (see Figures 5 and 7), said male and female surfaces being further defined about said axes  $X_m$  and  $X_f$  by a nominal profile in a cross section of the mechanism (see Figure 5), said profile of the male surface defining a male profile having an order of symmetry  $N_m$  with respect to a center  $O_m$  located on said male axis  $X_m$ , said profile of the female surface defining a female profile having an order of symmetry  $N_f$  with respect to a center  $O_f$  located on said female axis  $X_f$  (see Figure 5, which shows that the male surfaces have an order of symmetry of three and the female surfaces have an order of symmetry of two) , said rotary screw machine further having a main synchronizing coupling comprising a crank like mechanism (see Figure 7) generating an eccentricity  $E$  between said main axis  $X$  and one of the axes (it is inherent that the crank like

mechanism is capable of generating an eccentricity between the main axes and one of the other axes, since the apparatus is disclosed to revolve about the eccentric (as seen by the eccentric rotational circle (21) (see Column 2, lines 59-71 and Column 3, lines 8 -39)),

- characterized in that a first one of said male and female members is hinged in said body and is able to rotate on itself about its fixed axis according to a rotational motion (see Figures 5 and 7, Column 2, line 59 - Column 3, line 39),
- in that said crank like mechanism is connected to a second one of said male and female members to allow the axis of said second member to revolve about the fixed axis of said first member according to an orbital revolution motion having said length E as a radius, and in that said rotary screw machine comprises a main synchronizer synchronizing said swiveling motion and said orbital revolution motion, one with respect to the other, so that said male and female surfaces mesh together (see Figures 5 and 7, Column 2, line 59 – Column 3, line 39).

Regarding claim 2, PAYNE discloses:

- rotational transmission means (it is inherent that the rotational transmission means is connected to the drive shaft (40) in order to move the shaft, which operates the pump) connected to said crank organ or to said first member (see Figure 7).

Regarding claim 4, PAYNE discloses:

- characterized in that said male and female surfaces are brought in mechanical contact forming a kinematic pair allowing the transmission of motion between said first and second members (see Figures 5 and 7, Column 2, line 59 – Column 3, line 39).

Regarding claim 15, PAYNE discloses:

- characterized in that said female order of symmetry  $N_f$  is equal to  $N_m - 1$  (see Figure 5, which shows that the female order of symmetry is two, which is one less than the male order of symmetry that is three).

Regarding claim 17, PAYNE discloses:

- characterized in that said male or said female surfaces can degenerate into cylindrical surfaces (see Figures 5 and 7, which shows that the female surfaces degenerate into cylindrical surfaces).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. ***Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over PAYNE in view of BRODOV ET AL (Russian Patent No. 2 140 018 C1).***

PAYNE discloses the claimed invention as discussed above, however, fails to disclose additional synchronizers.

Regarding claim 5, BRODOV ET AL teaches:

- an additional synchronizer (see Figure 9), linked to said body and allowing said second member to rotate about its axis (see Figures 9-10, Pages 13-14).

Regarding claim 6, BRODOV ET AL teaches:

- characterized in that said additional synchronizer comprises a planetary gear transmission (see Figures 9-10, Pages 13-14).

Regarding claim 7, BRODOV ET AL teaches:

- rotational transmission means connected to said crank organ and to one of said male or female member (it is inherent that a rotational transmission means is connected to the crank organ and to one of said male or female members via the crankshaft (7), in order to provide the rotational input to allow the male and female members to move generating meshing pockets to transfer the working fluid from the inlet to the outlet of the machine).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have changed the synchronizing mechanism in the rotary machine of PAYNE with the mechanism of BRODOV ET AL, in order to reduce the size of the rotary machine. Furthermore, a change of the synchronizing mechanism (i.e. the gearing needed to synchronize the machine) is within the level of ordinary skill in the art, absent any showing of unexpected results.

### ***Response to Arguments***

10. Applicant has submitted that claims 1 and 18 are generic. The Examiner does not find the arguments persuasive. As discussed in the election of species dated 24



September 2007, claim 1 recites a limitation to "a crank like mechanism" (lines 16-17). The planetary gears of Figures 13-14 do not have a "crank like mechanism"; therefore, claim 1 is not generic. Claim 18 discloses "two degrees of freedom" (part b); which in the specification only Figures 7-8 disclose two degrees of freedom.

***Prior Art***

11. The IDS (PTO-1449) filled on 14 January 2005 has been considered. An initialized copy is attached hereto.

***Communication***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. Davis whose telephone number is (571) 272-9965. The examiner can normally be reached on Monday thru Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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MAD

1/7/08



/Mary A. Davis/

Patent Examiner Art Unit: 3748

  
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